



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

December 5, 2002

Ms. Karen Smith  
Director  
Water Quality Division  
Arizona Department of Environmental Quality  
1110 W. Washington St.  
Phoenix, AZ 85007

Dear Ms. Smith:

Thank you for submitting Arizona's 2002 Section 303(d) list of water quality limited water bodies. EPA received the electronic submittal on October 2, 2002 and supporting documentation and information on October 17, 2002. EPA carefully reviewed the State's listing decisions, assessment methodology, and supporting data and information. Based on this review, EPA has determined that Arizona's 2002 list of 32 water quality limited segments (WQLSs) still requiring TMDLs partially meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby partially approves and partially disapproves Arizona's 2002 Section 303(d) list. Specifically, EPA approves the State's decision to list the 32 waters and associated pollutants identified in table 27 of the listing report along with the State's priority rankings for these waters and pollutants. However, EPA disapproves the State's decision not to list 19 additional water bodies, and additional pollutants for 3 waters already listed by the State, because EPA finds that these waters and pollutants meet the federal requirements for listing under Section 303(d). The statutory and regulatory requirements, and a summary of EPA's review of Arizona's compliance with each requirement, are described in Enclosure 1.

EPA is identifying for inclusion on Arizona's Section 303(d) list 19 waters and associated pollutants, and additional pollutants for 3 waters already listed by Arizona. The specific waters and pollutants added by EPA, and associated priority rankings, are identified in Table 1, which is enclosed with this letter. EPA will open a public comment period to receive comments concerning our decision to add waters and pollutants to the State's Section 303(d) list.

EPA identified three situations in which waters and pollutants do not attain water quality standards but were not listed on the Section 303(d) list by the State. First, several waters and pollutants are covered by existing fish consumption advisories based on locally collected data and violate the State's narrative water quality standards. Second, fish tissue data for one water

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body indicate that mercury levels are much higher than EPA's screening guidelines designed to protect against adverse impacts to human health; EPA concludes that the water violates the State's narrative water quality standards. Third, available data indicate that several waters substantially exceed the State's numeric water quality standards for specific pollutants.

EPA has received Arizona's long-term schedule for TMDL development for all waters on the State's 2002 Section 303(d) list. As a policy matter, EPA has requested that States provide such schedules. See Memorandum from Robert Perciasepe, Assistant Administrator for Water, to Regional Administrators and Regional Water Division Directors, "New Policies for Developing and Implementing TMDLs", August 8, 1997. I appreciate that you provided this schedule and look forward to discussing with you the State's future TMDL development plans. However, EPA is not taking any action to approve or disapprove this schedule pursuant to Section 303(d).

EPA's partial approval and partial disapproval of Arizona's Section 303(d) list extends to all water bodies on the list with the exception of those waters within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the Arizona list with respect to those waters at this time, EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters. EPA's decision to identify additional waters and pollutants for inclusion on the Section 303(d) list does not apply to any waters in Indian Country.

The public participation process sponsored by Arizona Department of Environmental Quality included solicitations of public comment through newspaper advertisements and preparation of a responsiveness summary explaining how the State considered public comment in the final listing decisions.

Thank you for your efforts to develop the Section 303(d) water body list for 2002. If you have questions on any of the above information, feel free to give me a call at (415) 972-3435 or call David Smith at (415) 972-3416.

Sincerely,

Catherine Kuhlman  
Acting Director  
Water Division

Enclosures

**Table 1: Waters added to 303(d) list for Arizona**

## Description of Table Columns:

“Water Body” column identifies the water bodies on the 303(d) list.

“Watershed” column identifies the geographical location of the water body based on State’s designation.

“Water body ID” column specified the water body segment based on State’s designation.

“Pollutants” column identifies the specific pollutants for which the water bodies were found to exceed water quality standards.

“Basis for Listing” column identifies the basis for individual listing decisions.

“Priority Ranking” column indicates the priority ranking for TMDL development associated with an individual listing decision (H = High; M = Medium; L = Low priority)

Water Body	Watershed	Water body ID	Pollutants	EPA basis for listing	Priority Ranking
Gila River Salt-Agua Fria	Middle Gila	AZ 15070101- 015	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Gila River Agua Fria- Waterman Wash	Middle Gila	AZ 15070101- 014	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Gila River Waterman Wash- Hassayampa	Middle Gila	AZ 15070101- 010	DDT metabolites, Toxaphene Chlordane	Consumption advisory posted	M
Gila River Hassayampa- Centennial Wash	Middle Gila	AZ 15070101- 009	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Gila River Centennial Wash- Gillespie Dam	Middle Gila	AZ 15070101- 008	DDT metabolites, Toxaphene Chlordane	Consumption advisory posted	M
Gila River Gillespie Dam- Rainbow Wash	Middle Gila	AZ 15070101- 007	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Gila River Rainbow Wash- Sand Tank	Middle Gila	AZ 15070101- 005	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Gila River Sand Tank-Painted Rocks Rsvr	Middle Gila	AZ 15070101- 001	DDT metabolites, Toxaphene Chlordane, Dieldrin	Consumption advisory posted	M
Painted Rocks Borrow Pit	Middle Gila	AZ 15070201- 1010	DDT metabolites, Toxaphene, Chlordane, Dieldrin	Consumption advisory posted	M



Water Body	Watershed	Water body ID	Pollutants	EPA basis for listing	Priority Ranking
Painted Rocks Reservoir	Middle Gila	AZ 15070101-1020	DDT metabolites, Toxaphene, Chlordane, Dieldrin	Consumption advisory posted	M
Salt River 23 <sup>rd</sup> Ave WWTP- Gila River	Middle Gila	AZ 15060106 B-001D	DDT metabolites, Toxaphene, Chlordane, Dieldrin	Consumption advisory posted	M
Hassayampa River Buckeye Canal- Gila River	Middle Gila	AZ 15070103-001B	DDT metabolites, Toxaphene, Chlordane, Dieldrin	Consumption advisory posted	M
Lake Mary-Upper	LCR	AZ 15020015-0900	Mercury	Consumption advisory posted	H
Lake Mary-Lower	LCR	AZ 15020015-0890	Mercury	Consumption advisory posted	H
Lyman Lake	LCR	AZ 15020001-0850	Mercury	Consumption advisory posted	H
Alamo Lake	Bill Wms	AZL 15030204-0040	Mercury	Recent fish tissue data (ADEQ 2001) shows 33 out of 33 tissue samples above screening value	H
Crescent Lake	Salt	AZL 15060101-0420	pH	Exceeded water quality standards in 6 out of 8 samples	L
Mule Gulch headwaters- WWTP	San Pedro	AZ 15080301-090A	pH	Exceeded water quality standards in 7 out of 15 samples	L
Alum Gulch	Santa Cruz	AZ 15050301-581A	pH	Exceeded water quality standards in 7 out of 7 samples	L
Santa Cruz River, Canada del Oro-Guild Wash	Santa Cruz	AZ 15080301-001	DO	Exceeded water quality standards in 6 out of 12 samples	L
Three R Canyon	Santa Cruz	AZ 15080301-558A	pH	Exceeded water quality standards in 8 out of 9 samples confidence	L

Water Body	Watershed	Water body ID	Pollutants	EPA basis for listing	Priority Ranking
Granite Basin Lake	Verde	AZL 15060202- 0580	DO	Exceeded water quality standards in 3 out of 7 samples	L
Whitehorse Lake	Verde	AZL 15060202- 1630	DO	Exceeded water quality standards in 5 out of 11 samples; fish kill in 1999	L

**Enclosure 1:  
Review of Arizona's 2002 Section 303(d) Water body List**

*Enclosure to letter from Catherine Kuhlman, EPA Region 9 to Arizona Department of  
Environmental Quality*

Date of Transmittal Letter From State: October 1, 2002

Date of Receipt by EPA: October 2, 2002

Date of Supplemental Transmittal From State: October 17, 2002

**Purpose**

The purpose of this review document is to describe the rationale for EPA's partial approval and partial disapproval of Arizona's 2002 Section 303(d) water quality limited waters list. The following sections identify those key elements to be included in the list submittal based on the Clean Water Act and EPA regulations (see 40 C.F.R. §130.7). EPA reviewed the methodology used by the State in developing the 303(d) list and Arizona's description of the data and information it considered. EPA's review of Arizona's 303(d) list is based on EPA's analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

**Statutory and Regulatory Background**

**Identification of WQLSs for Inclusion on Section 303(d) List**

Section 303(d)(1) of the Act directs States to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by federal, State or local authority, and (3) other pollution control requirements required by State, local, or federal authority. See 40 CFR 130.7(b)(1).

**Consideration of Existing and Readily Available Water Quality-Related Data and Information**

In developing Section 303(d) lists, States are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting



designated uses, or as threatened, in the State's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA. See 40 CFR 130.7(b)(5). In addition to these minimum categories, States are required to evaluate any other water quality-related data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available (see, EPA 1991, Appendix C). While States are required to evaluate all existing and readily available water quality-related data and information, States may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring States to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require States to include as part of their submissions to EPA documentation to support decisions to use or not use particular data and information and decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region.

#### Priority Ranking

EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) of the Act that States establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See Section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that States establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and State or national policies and priorities. See 57 FR 33040, 33045 (July 24, 1992), and EPA 1991.

#### Analysis of Arizona's Submission

##### Identification of Waters and Consideration of Existing and Readily Available Water Quality-Related Data and Information.

EPA has reviewed the State's submission, and has concluded that the State developed its Section 303(d) list in partial compliance with Section 303(d) of the Act and 40 CFR 130.7. Because Arizona's submission does not include all waters that meet Section 303(d) listing requirements, its list is being partially approved and partially disapproved, and the additional waters and pollutants that meet the listing requirements

are being added to the final 2002 list. EPA's review is based on its analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

Since its last 303(d) submittal, Arizona enacted a statute and adopted rules governing its identification of impaired waters. See, A.R.S. § 49-232; A.A.C. R18-11-601 *et seq.* Pursuant to the State statute and rule, the State revised its Section 303(d) assessment methodology. The rule and associated methodology provide that the State can consider only reasonably current credible and scientifically defensible data (A.R.S. § 49-232.B), and that results of water sampling or other assessments of water quality shall be considered credible and scientifically defensible only if ADEQ has determined that each of several criteria set forth in the statute have been met (A.R.S. § 49-232.B. (1 - 4)). Arizona determined that available data were unreliable in very few cases as part of its 2002 assessment (see ADEQ Technical Support Document, pp. 5-6). EPA carefully reviewed the State's consideration of data quality and finds that the State's decision not to rely upon these excluded data sets was reasonable because the State identified legitimate problems with the data that suggest they are of questionable reliability.

ADEQ's rules establish data conventions that ADEQ shall use to interpret data for its impaired water identifications (R18-11-603.A.), and identify data which ADEQ shall not use for placing a water on its 303(d) list (R18-11-603.B). ADEQ's rules also identify conditions under which it will not place a surface water or segment on its 303(d) list. See, R18-11-604.C.1 (related to pollutant loadings from naturally occurring conditions), C.2 (related to data collected within a mixing zone or "under a variance or nutrient waiver"), and C.3 (related to activities or conditions regarding, e.g., canal and dam maintenance). EPA carefully reviewed the State's application of these provisions and found that they did not cause a water meeting the federal listing requirements to be omitted from the Section 303(d) list.

ADEQ's rules also appear to establish that, when evaluating a surface water or segment for placement on the 303(d) list, ADEQ must consider at least 20 spatially or temporally independent samples collected over three or more temporally independent sampling events (see, R18-11-605D.1), unless alternative listing criteria set forth in R18-11-605D.2 are satisfied. As explained below, EPA has determined that sufficient data were available for several waters with less than 20 samples available to support a conclusion that several waters and pollutants not listed by the State meet federal listing requirements.

ADEQ based its 2002 Section 303(d) submittal on its review of surface water quality data collected during the five-year period beginning October 1995 (ADEQ 2002, p. III-6). EPA finds it reasonable for the State to make its assessment based on water quality data collected during this timeframe because the more recent ambient water quality data are more likely to be representative and indicative of current water quality conditions. EPA notes, however, that it may be reasonable to consider sediment and tissue data that are older than five years in age because these media usually are longer term integrators of chemical contamination than ambient water column data and provide reliable information for assessing water quality conditions for a longer period of time. ADEQ requested data from federal and state agencies, universities, and volunteer



monitoring groups, and compiled data from ADEQ's permit compliance, enforcement and remediation programs.

Except as noted below, the State was reasonably diligent in compiling data and completed a good synthesis of individual monitoring data for each water body (ADEQ 2002, Vol. I and II). ADEQ reviewed the data to determine if it met requirements established in the State's statute and rules related to the identification of impaired waters. Arizona compiled its 2002 Section 303(d) list based on evaluation of water chemistry data only. The State did not carefully evaluate monitoring data in other areas—bottom deposit, sediment contamination, bioassessments, physical integrity, fish kills and fish tissue for Section 303(d) listing purposes based on the rationale that its rules precluded their application absent approved water quality standards implementation procedures for narrative standards. As explained below, EPA has determined that these other types of data and information (particularly, fish tissue data and associated consumption advisories) support a conclusion that several waters and pollutants not listed by the State meet federal listing requirements.

Arizona applied different methods for determining whether numeric water quality standards were exceeded depending upon whether available water column data were available for toxic pollutants or for other pollutant types. In general, the State required fewer water quality standards exceedences in order to list toxic pollutants than it did to list other pollutant types. The State listed toxic pollutants in cases where more than 1 sample exceeded the applicable numeric standard for each parameter in any three year period. This approach is consistent with EPA's 1997 and 2002 assessment guidance documents and State water quality standards. EPA concludes that the listings of toxic pollutants on this basis are consistent with federal listing requirements.

The State required a higher rate of standards exceedences in order to list other types of pollutants (referred to here as conventional pollutants). The State listed waters in cases where there was greater than 90% statistical confidence that a numeric standard for a conventional pollutant was exceeded at least 10% of the time (i.e., the so-called "binomial" approach). EPA questioned the analytical basis for this approach in our comments on the listing rule and the draft assessment decision. The State's rationale for applying a 90% confidence rule was to decrease the likelihood of listing waters that do not actually exceed water quality standards (i.e., false positives or type 1 error).

The State cited two rationales for its 10% exceedence rule. First, the State cited a section of EPA's 1997 assessment guidance that recommended finding that a water was partially supporting its uses if more than 10% of available samples exceeded the applicable standard for a conventional pollutant (i.e., the so-called "raw score" assessment method). EPA has carefully reviewed the 1997 guidance cited by the State. The cited guidance language is silent as to whether it applies only to the evaluation of sample sets to determine attainment of water quality standards through the "raw score" approach, or whether it also provides guidance concerning the allowable exceedence rate appropriate for the underlying water quality standards for conventional pollutants. In light of this absence of a clear statement regarding Arizona's 10% exceedence rule in the cited guidance, we find that the State's interpretation of that guidance as providing a basis for applying a 10% exceedence rule for testing standards attainment is reasonable for

purposes of the 2002 Section 303(d) assessment. However, EPA will consider clarifying this guidance in the future to more clearly distinguish its advice for assessing sample sets through the so-called “raw score” approach (as recommended in the 1997 guidance) as opposed to guidance for interpreting allowable exceedence rates for conventional pollutants.

Second, the State cited a rationale that EPA had approved the same approach in Nebraska, Florida, and Texas. EPA has approved Nebraska’s list, which applied a similar statistical analysis approach. EPA has taken no action on lists submitted by Texas or Florida.

The State also required a large minimum sample size to assess compliance with water quality standards for conventional pollutants. In general, the State required a minimum of 20 data points. In its comments on the methodology and the draft list, EPA expressed concern that application of a 20 sample minimum could result in an assessment that missed waters that are highly likely to exceed applicable water quality standards. In response, the State suggested that setting a higher sample size helps to manage type 2 error (i.e., the potential for incorrectly concluding that an impaired water should not be included on the Section 303(d) list), citing EPA’s CALM guidance as providing support for this approach (ADEQ Technical Support Document, p. 16). This response mischaracterizes EPA’s guidance, which focused on the design of a monitoring program to ensure that sufficient large sample sizes are available in the future to effectively manage both type 1 and type 2 errors in future assessments. The CALM guidance does not recommend that States exclude from further consideration smaller sample sets in the 2002 listing assessment process (which has the effect of increasing type 2 error by ensuring that waters with relatively small sample sizes receive no further consideration in the assessment process). For example, the State did not identify 3 R Canyon on its Section 303(d) list for pH although 8 out of 9 independent pH samples were in violation of the applicable water quality standards. Under the State’s listing methodology, this water would have been listed if there had been 20 samples instead of 9 because the listing criteria established under the State’s “binomial” approach would have been met. EPA concludes that the State’s decision not to list several waters with less than 20 samples available was unreasonable and inconsistent with federal listing requirements because these waters had a sufficient number of standards exceedences to support a reliable conclusion that standards are not being implemented.

EPA has reviewed Arizona’s description of the data and information it considered, its methodology for identifying waters, and the State’s responsive summary. EPA concludes that the State’s decisions to list the waters and pollutants identified in Table 27 of its listing submittal are consistent with federal listing requirements. EPA’s decision to approve these listings does not mean that EPA concurs with or is taking any action with respect to the State’s listing methodology. EPA considered the State methodology in its decision to approve the waters and pollutants listed by the State. However, EPA also reviewed the data and information provided by the State as part of its listing submittal to determine whether the State listed all waters or pollutants that do not attain State water quality standards and meet federal listing requirements. EPA concludes that the State’s decision not to list several waters and pollutants are not consistent with federal listing requirements. As discussed below, the available data and information are sufficient to



support a conclusion that these waters are water quality limited and need to be listed pursuant to Section 303(d).

The State properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and EPA guidance. Section 303(d) lists are to include all water quality limited segments (WQLSs) still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. In *Pronsolino v. Marcus*, the District Court for the Northern District of California held that section 303(d) of the Clean Water Act (CWA) authorizes EPA to identify and establish total maximum daily loads (TMDLs) for waters impaired by nonpoint sources. *Pronsolino et al. v. Marcus et al.*, 91 F.Supp.2d 1337, 1347 (N.D.Ca. 2000), aff'd, *Pronsolino v. Natri*, 291 F.3d 1123 (9<sup>th</sup> Cir 2002). See also EPA's 1991 Guidance and National Clarifying Guidance for 1998 Section 303(d) Lists, Aug. 27, 1997.

#### **Basis for Decision to Add Waters to Arizona's 2002 Section 303(d) List**

This section describes the basis for EPA's decisions to (1) disapprove the State's decision to not list several water bodies and/or pollutants for currently listed water bodies, and (2) identify these water bodies for inclusion on the final 2002 Section 303(d) list with associated priority rankings. EPA will solicit public comments on these additions to Arizona's list, and, following consideration of any comments received, will transmit the final list to Arizona for incorporation in the State's water quality management plan.

#### **Listing Waters Based Upon Fish Consumption Advisories and Fish Tissue Data**

As discussed above, Arizona did not carefully evaluate data and information other than water column data for potential violations of narrative water quality standards. Federal regulations at 40 CFR 130.7(b)(3) provide that States must consider potential exceedences of all applicable water quality standards, including designated beneficial uses, numeric and narrative criteria, and antidegradation requirements. While it is helpful for States to adopt implementation procedures to aid in application of narrative water quality standards, federal regulations do not make their adoption and approval a precondition of their application in the Section 303(d) list assessment process. EPA concludes that Arizona did not provide a reasonable rationale for not considering listings due to nonattainment of narrative standards absent approved implementation procedures. Therefore, EPA carefully reviewed available information in the record provided by the State to determine whether any waters violated narrative standards and should be included on the Section 303(d) list.

EPA reviewed several readily available data sets, including sediment, tissue and biological results from federal and state agencies, universities and volunteer monitoring groups to evaluate whether any waters exceed applicable narrative water quality standards due to the presence of pollutants. EPA's evaluation of sediment, bioassessment, and physical integrity data did not produce sufficient evidence of impairment to support a finding that any narrative water quality standards were violated on this basis. However, EPA found that the State has issued fish consumption advisories for several waters due to



the presence of mercury and chlorinated pesticides. Each of these advisories was based on locally collected fish tissue data and provides evidence that the fish consumption use is impaired in each of these waters. Consistent with EPA's national guidance (EPA, 2000a), EPA finds that the following waters with fish consumption advisories based on locally collected data meet federal listing requirements: Upper and Lower Lake Mary, Lyman Lake, portions of Hassayampa River, Gila River, Salt River, Gillespie Dam, Painted Rocks Reservoir and Borrow Pit.

In addition, our review of recent fish tissue data for Alamo Lake indicates that mercury levels exceeded EPA's human health screening level for mercury in 100% of recent samples (n = 38) (EPA, 2001a; personal communication with Sam Rector, ADEQ). EPA concludes that these data provide sufficient evidence to conclude that Arizona's narrative water quality standard for toxic pollutants (A.A.C. R18-11-108) is not being implemented and that this water meets the federal listing requirements.

#### Listing Waters Based on Numeric Standards Exceedences

As discussed above, EPA concluded that the State's decision not to list waters due to exceedences of water quality standards for conventional pollutants based on a minimum 20 sample size requirement is unreasonable and inconsistent with federal listing requirements. EPA carefully examined ADEQ's water quality assessments of waters with less than 20 samples. EPA found that the following waters exceed applicable water quality standards in 43-100% of available samples: Crescent Lake, Mule Gulch, Alum Gulch, Santa Cruz River, 3 R Canyon, Granite Basin Lake, and Whitehorse Lake. A finding that these waters do not attain the applicable standards is consistent with EPA's 1997 and 2002 assessment guidance documents with respect to conventional pollutant assessments as well as applicable Arizona water quality standards. Therefore, EPA has determined that these waters meet federal listing requirements. Moreover, EPA notes that there is higher than 90% confidence that these waters exceed standards more than 10% of the time, consistent with the assessment policy adopted in Arizona's Impaired Waters Rule.

In March 2002, ADEQ revised its water quality standards. See, ADEQ, Notice of Final Rulemaking, 8 A.A.R. 1264 (Mar. 29, 2002), amending A.A.C., R18-11-101 et seq. In October 2002, some of the State's revisions to its water quality standards were approved by EPA pursuant to CWA, section 303 (c) (3), and 40 CFR 131.5. See, letter dated Oct. 22, 2002, from Catherine Kuhlman to Karen Smith. As part of its partial approval action, EPA approved Arizona's decision to withdraw the numeric water quality standard for turbidity. Therefore, EPA is not identifying any additional waters for inclusion on the Section 303(d) list based on turbidity data because the State's numeric turbidity standards were withdrawn and EPA does not have a sufficient analytical basis for comparing the available data with remaining applicable water quality standards that address turbidity.

#### Good Cause for Delisting

Arizona did not include on its 2002 Section 303(d) list several waters included on the 1998 list, and EPA asked the State to provide rationales for its decisions not to list several

previously listed waters. The State has demonstrated, to EPA's satisfaction, good cause for not listing these waters, as provided in 40 CFR 130.7(b)(6)(iv).

Arizona did not include nine water bodies on the 303(d) list because additional analysis of available monitoring data supported a conclusion that applicable standards were not exceeded: Christopher Creek, Dankworth Ponds, Dry Beaver Creek (Dry—Verde Creek), Pinal Creek, Roper Lake, Tonto Creek, Wet Beaver Creek, Tempe Town Lake, and Lakeside Lake. The State also discussed its assessments of Paria River, Bartlett Lake, and Colorado River in greater detail.

For the Paria River, the State concluded that elevated turbidity in this water body is due to natural erosion of sandstone in Arizona and elevated turbidity levels attributed to anthropogenic sources upstream of the Arizona border. Although it would be invalid for the State to decline to list a water solely based on a finding that an anthropogenic source is located in a State outside its jurisdiction, EPA notes that the numeric standard for turbidity was withdrawn and is no longer in effect. Therefore, as discussed above, EPA does not have a sufficient analytical basis for determining whether the remaining narrative standards related to turbidity are not being implemented in the Paria River. Therefore, EPA is not adding the Paria River to the Section 303(d) list due to turbidity.

Bartlett Lake was originally listed in 1996 for dissolved oxygen and turbidity. The State's investigation of Bartlett Lake indicated that turbidity exceedences occurred concurrent with dam releases from Horseshoe Lake. Arizona's rules provide that increases in turbidity that result from routine maintenance of a dam or flood control structure do not violate the State's water quality standards (R18-11-118A), and the State concluded that standards excursions in Bartlett Lake do not violate applicable water quality standards. EPA defers to the State's interpretation of its water quality standards exemption in this case.

For the Colorado River—Lake Powell to Paria River, Arizona did not list selenium based on its statistical analysis of most recent data (i.e., the geometric mean of the last four samples did not exceed the chronic Se freshwater standard). EPA reviewed the available water column selenium data and concurs with the State's decision. Arizona has added this water body to its Planning List for further monitoring and assessment.

Consistent with EPA's 2002 Integrated Report Guidance, Arizona submitted an integrated report (i.e., combining the Section 305(b) report and Section 303(d) list in one document). Consistent with the EPA guidance, Arizona did not include on the Section 303(d) list waters for which TMDLs have been completed and either approved or established by EPA. These waters include: Arivaca Lake, Luna Lake, Pecks Lake, Pena Blanca Lake, Rainbow Lake, Stoneman Lake, Little Colorado River—Water Canyon to Carnero Wash, Nutrioso Creek—headwaters to Little Colorado River, Oak Creek at Slide Rock, Pinto Creek, Verde River—Railroad Draw and Verde River—West Clear Creek.

EPA requested a more detailed rationale to support the State's decision not to list Cortez Park Lake. Arizona reported that Cortez Park Lake was drained, dredged and deepened in 2002 in an effort to address potential water quality problems. The State found that as a result of these restoration actions, the physical conditions of the Lake have dramatically changed since the available monitoring data were collected in 1999 and that



those data are no longer representative of the water body in question (ADEQ 2002, Vol. II, pg. MG-27). EPA concurs with this finding and concludes that Cortez Park Lake does not have to be included on the Section 303(d) list.

### **Public Comments**

Amongst the public comments regarding the State's 303(d) list, several overriding issues were of interest to EPA. Concerns were raised about listing waters with natural background inputs and the State responded that listing was warranted if anthropogenic inputs were determined to be causing impairment. Several comments were made on high priority ranking of certain listed waters and the State reconsidered and modified the ranking status to medium priority. One comment was filed about listing Tempe Town Lake which the State clarified and placed on the Planning List based on its finding that water quality standards are currently being met, and because control actions had already been implemented to address past water quality concerns. Comments were also raised on listing ephemeral waters based on exceedences of chronic water quality standards. The State responded that potential changes in application of chronic standards to ephemeral waters were being considered by EPA and established procedures were in place until EPA's approval was received. EPA has reserved action on this matter until a later date. One question was raised about the appropriateness of assessing impounded waters and the State adequately defended its position that this water body (e.g., Cholla Lake) is indeed waters of U.S. and therefore it was included in the State's assessment. EPA has reviewed all comments and supports the State's responses.

### **Priority Ranking and Targeting**

EPA reviewed Arizona's priority ranking of listed waters for TMDL development, and concludes the State properly took into account appropriate ranking factors to make its determination. The State's elaborate decision process for ranking the listed waters is established in the Impaired Waters Rule and includes numerous relevant factors: magnitude and duration of the exceedence, designated beneficial uses, imminent harm to public health or wildlife, jeopardy to threatened and endangered species, impairment of (State designated) "unique waters", degree of public interest, recreational and economic significance, anticipated revision of NPDES or AZPDES permit for discharge to impaired water body. Arizona also considers whether the water body has been on the list an extensive length of time, whether more than one designated use is impaired and whether seasonal conditions are contributing to the impairment.

EPA concludes that the State properly considered those factors required to be considered by Section 303(d) and applied a reasonable set of additional ranking factors, consistent with the priority ranking provisions of 40 CFR 130.7(b).

EPA reviewed the State's identification of water quality limited segments targeted for TMDL development in the next two years and concludes that the targeted waters (high priority) are appropriate for TMDL development in this time frame. Short-term targeting applies to these waters: Alamo Lake, Hassayampa River—headwaters to Copper Creek, Little Colorado River—Porter Tank to McDonalds Wash, French Creek—headwaters to Hassayampa, Turkey Creek—headwaters to Poland Creek, Virgin River—Beaver Dam Wash to Big Bend Wash and Santa Cruz River—border to WWTP. The State has



targeted an appropriate mix of complex and relatively simple TMDLs addressing both point and nonpoint sources.

For those waters and pollutants added to the list by EPA, priority rankings are provided in Table 1. In general, EPA utilized the same ranking factors applied by Arizona in making ranking decisions. EPA is targeting as high priorities for TMDL development several lakes impaired by mercury principally because mercury poses significant potential threats to human health and wildlife in these waters. EPA set medium priority rankings for several waters with consumption advisories associated with legacy pesticides but which are less heavily used for fishing than the lakes targeted as high priorities. The remaining waters added by EPA are assigned low priority rankings because the threats to designated uses are relatively minor.

### **Administrative Record Supporting This Action**

In support of this decision to partially approve and partially disapprove the Arizona's listing decisions, EPA carefully reviewed the materials submitted by Arizona with its 303(d) listing decision and supplemental data and information provided at EPA's request. Specifically, EPA considered sediment and fish tissue data results and information concerning consumption advisories in its review of Arizona's listing decisions. The administrative record supporting EPA's decision is comprised of the materials submitted by the State, copies of Section 303(d), associated federal regulations, and EPA guidance concerning preparation of Section 303(d) lists, EPA's past comments on Arizona's listing methodology and draft list, and this decision letter and supporting report. EPA determined that the materials provided by the State with its submittal provided sufficient documentation to support our analysis and findings that the State listing decisions meet the requirements of the Clean Water Act and associated federal regulations. We are aware that the State compiled and considered additional materials (e.g. raw data and water quality analysis reports) as part of its list development process that were not included in the materials submitted to EPA. EPA did not consider all of these additional materials as part of its review of the listing submission. It was unnecessary for EPA to consider all of the materials considered by the State in order to determine that, based on the materials submitted to EPA by the State, the State complied with the applicable federal listing requirements. Moreover, federal regulations do not require the State to submit all data and information considered as part of the listing submission.

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